

## MICKEY KOSLOFF

Departments of Biology & Human Biology • Faculty of Natural Sciences • University of Haifa  
199 Aba Khoushy Ave., Mt. Carmel, Haifa, 3498838, Israel  
04-8288996 (office)

<http://koslofflab.haifa.ac.il/index.html>

[kosloff@sci.haifa.ac.il](mailto:kosloff@sci.haifa.ac.il)

### Education:

2003	<b>The Hebrew University, Department of Biological Chemistry</b> PhD Structural and Molecular Biochemistry ( <i>summa cum laude</i> ). Thesis title: “Modulation of G-protein function as molecular switches”.	Jerusalem, Israel
1996-2002	PhD studies with the late Prof. Zvi Selinger.	
1996	MSc Biochemistry.	
1994	<b>The Hebrew University</b> BSc Chemistry in the Amirim interdisciplinary honor program ( <i>summa cum laude</i> ).	Jerusalem, Israel

### Professional Experience:

2021-	Associate Prof. (University of Haifa, Departments of Biology and Human Biology). Head of the Signal Transduction and Protein Re-Design Lab.
2012-2021	Senior lecturer (Asst. Prof.; University of Haifa, Departments of Biology and Human Biology). Tenured 7/2019, research lab opened in June 2014.
2006-2011	Research associate (computational and experimental biology) with Dr. Vadim Arshavsky (Duke University).
2003-2006	Postdoctoral fellow (computational biology) with Dr. Barry Honig (Columbia University).
2003	Research scientist with Prof. Shy Arkin (Hebrew University).
2001-2003	Co-founder of Promethium Drug Development (with Prof. Zvi Selinger), a biotechnology startup company developing novel anti-cancer drugs.
2000	Visiting researcher with Prof. Arieh Warshel (USC, Los Angeles).
1994-2002	Researcher with Prof. Zvi Selinger (Hebrew University).

### Publications

- Kleiner D., Shapiro Tuchman Z., Shmulevich F., Shahar A., Zarivach R., **Kosloff M.**, Bershtein S. “Evolution of homo-oligomerization of methionine S-adenosyltransferases is replete with structure-function constraints”. *Protein Science*, 2022, 31(7): e4352.
- Liebscher I., Cevheroglu O., Hsiao C., Maia A., Schihada H., Scholz, N., Soave M., Speiss K., Trajkovic K., **Kosloff M.**, Promel S. “A guide to adhesion GPCR research - exploring the structure, function and clinic relevance of adhesion GPCRs using multi-disciplinary approaches”. *FEBS Journal*, in press. 2022: 1-21.
- Asli A., Higazy-Mreih S., Avital-Shacham M., **Kosloff M.** “Residue-level determinants of RGS R4 subfamily GAP activity and specificity towards the Gi subfamily”. *Cellular and Molecular Life Sciences*, 2021, 78 (17-18): 6305-6318.
- Masarati G., Landau M., Ben-Tal N., Lupas A., **Kosloff M.\***, Kosinski J. “Integrative structural biology in the era of accurate structure prediction”. *Journal of Molecular Biology*, 2021, in press. \* a corresponding author.
- Shushan S., **Kosloff M.** “Structural design principles for specific ultra-high affinity interactions between colicins/pyocins and immunity proteins”. *Scientific Reports*, 2021, 11 (1), 3789: 1-15.
- Levy S., Brekhan V., Bakhman A., Seb -Pedr s A., **Kosloff M.\***, Lotan T. “Ectopic activation of GABA<sub>B</sub> receptors inhibits neurogenesis and metamorphosis in the cnidarian *Nematostella vectensis*”. *Nature Ecology & Evolution*<sup> </sup>, 2021, 5 (1): 111-121. \* a corresponding author.
- Sommer M.E., Selent J., Carlsson J., De Graaf C., Gloriam D.E., Keseru G.M., **Kosloff M.**, Mordalski S., Rizk A., Rosenkilde M.M., Sotelo E., Tiemann J.K.S., Tobin A., Vardjan N., Waldhoer M., Kolb P. “The European Research Network on Signal Transduction (ERNEST): Toward a Multidimensional Holistic Understanding of G Protein-Coupled Receptor Signaling”. *ACS Pharmacology & Translational Science*, 2020, 3 (2): 361-370.

8. Israeli R., Asli A., Avital-Shacham M., **Kosloff M.** “RGS6 and RGS7 discriminate between the highly-similar  $G\alpha_i$  and  $G\alpha_o$  proteins using a two-tiered specificity strategy”. *Journal of Molecular Biology*, 2019, 413 (15): 2790-2799.
9. Deshel S., **Kosloff M.** “Structural design principles that underlie the multi-specific interactions of  $G\alpha_q$  with dissimilar partners”. *Scientific Reports*, 2019, 9 (1): 6898.
10. Bakhman A., Rabinovich E., Shlamkovitch T., Papo N., **Kosloff M.** “Structure-based computational dissection of Receptor Tyrosine Kinase-Ligand interactions: Angiopoietin2-Tie2 as a test case”. *Proteins: Structure, Function and Bioinformatics*, 2019, 87 (3): 185-197.
11. Salem-Mansour D., Asli A., Avital-Shacham M., **Kosloff M.** “Structural motifs in the RGS RZ subfamily combine to attenuate interactions with  $G\alpha$  subunits”. *Biochem. Biophys. Res. Commun.* 2018, 503 (4): 2736-2741.
12. Saad R., Cohananim A.B., **Kosloff M.**\*, Privman E. “Neofunctionalization in ligand binding sites of ant olfactory receptors”. *Genome Biology and Evolution*, 2018, 10 (9): 2490-2500. \* a corresponding author.
13. Kasom M., Gharra S., Sadiya I., Avital-Shacham M., **Kosloff M.** “Interplay between negative and positive design in the  $G\alpha$  helical domain sets interaction specificity towards RGS2”. *Biochemical Journal*, 2018, 475 (14): 2293-2304.
14. Asli A., Sadiya I., Avital-Shacham M., **Kosloff M.** “Disruptor residues in the regulator of G protein signaling (RGS) R12 sub-family attenuate the inactivation of  $G\alpha$  subunits”. *Science Signaling*, 2018, 11 (534), eaan3677.
15. Alon M., Emmanuel R., Qutob N., Bakhman A., Peshti V., Brodezki A., Bassan D., **Kosloff M.**, Samuels Y. “Refinement of the endogenous epitope tagging (EET) technology allows the identification of a novel NRAS binding partner in melanoma”. *Pigment Cell & Melanoma Research*, 2018, 31 (5): 641-648.
16. Qutob N., Masuho I., Alon M., Emmanuel R., Cohen I., Di Pizio A., Madore J., Elkahloun A., Ziv T., Levy R., Gartner J.J., Hill V.K., Lin J.C., Hevroni Y., Greenberg P., Brodezki A., Rosenberg S.A., **Kosloff M.**, Hayward N.K., Admon A., Niv M.Y., Scolyer R.A., Martemyanov K.A., Samuels Y. “RGS7 is recurrently mutated in melanoma and promotes migration and invasion of human cancer cells”. *Scientific Reports*, 2018, 8 (1): 653.
17. Zur Y., Rosenfeld L., Bakhman A., Ilic S., Hayun H., Shahar A., Akabayov B., **Kosloff M.**\*, Levaot N., Papo N. “Engineering a monomeric variant of macrophage colony-stimulating factor (M-CSF) that antagonizes the c-FMS receptor”. *Biochemical Journal*, 2017, 474 (15): 2601-2617. \* a corresponding author.
18. Rabinovich E., Heyne M., Bakhman A., **Kosloff M.**, Shifman J.M., Papo N. “Identifying residues that determine SCF molecular-level interactions through a combination of experimental and in silico analyses”. *Journal of Molecular Biology*, 2017, 429 (1): 97-114.
19. Kolodny R., **Kosloff M.** “From Protein Structure to Function via Computational Tools and Approaches”. *Isr. J. Chem.*, 2013, 53 (3-4): 147-156.
20. Cohen S.P., Buckley B.K., **Kosloff M.**, Bosch D.E., Cheng G., Radhakrishna H., Brown M.D., Willard F.S., Arshavsky V.Y., Tarran R., Siderovski D.P., Kimple A.J. “Regulator of G-protein signaling-21 (RGS21) is an inhibitor of bitter gustatory signaling found in lingual and airway epithelia”. *Journal of Biological Chemistry*, 2012, 287 (50): 41706-41719.
21. Weiss S., Kohn E., Dadon D., Katz B., Peters M., Lebendiker M., **Kosloff M.**, Colley N., Minke B. “Compartmentalization and  $Ca^{2+}$  buffering are essential for prevention of light induced retinal degeneration”. *Journal of Neuroscience*, 2012, 32 (42): 14696-14708.
22. Ivarsson Y., Wawrzyniak A., Wuytens G., **Kosloff M.**, Vermeiren E., Raport M., Zimmermann P. “Cooperative Phosphoinositide and Peptide Binding by PSD-95/Discs Large/ZO-1 (PDZ) Domain of Polychaetoid, Drosophila Zonulin”. *Journal of Biological Chemistry*, 2011, 286 (52): 44669-44678.
23. **Kosloff M.**, Travis A.M., Bosch D.E., Siderovski D.P., Arshavsky V.Y. “Integrating energy calculations with functional assays to decipher the specificity of G-protein–RGS protein interactions”. *Nat. Struct. Mol. Biol.*, 2011, 18(7): 846-853.
24. **Kosloff M.**, Alexov E., Arshavsky V.Y., Honig B. “Electrostatic and lipid-anchor contributions to the interactions of transducin with membranes: mechanistic implications for activation and translocation”. *Journal of Biological Chemistry*, 2008, 283 (45): 31197-31207.
25. **Kosloff M.**, Kolodny R. “Sequence-Similar, Structure-Dissimilar Protein Pairs in the PDB”. *Proteins: Structure, Function and Bioinformatics*, 2008, 71 (2): 891-902.
26. **Kosloff M.** et al. (co-authors are all 52 JCSG consortium personnel) “Comparative structural analysis of a novel glutathione S-transferase (Atu5508) from *Agrobacterium tumefaciens* at 2.0 angstrom resolution”. *Proteins: Structure, Function and Bioinformatics*, 2006, 65 (3): 527-537.
27. **Kosloff M.**, Selinger Z. “GTPase catalysis by Ras and other G-proteins: insights from Substrate Directed SuperImposition”. *Journal of Molecular Biology*, 2003, 331 (5):1157-1170.
28. **Kosloff M.**, Elia N., Joel-Almagor T., Timberg R., Zars T.D., Hyde D.R., Minke B., Selinger Z. “Regulation of light-dependent Gq-alpha translocation and morphological changes in fly photoreceptors”. *EMBO Journal*, 2003, 22 (3): 459-468.

29. **Kosloff M.**, Elia N., Selinger Z. “Structural homology discloses a bi-functional motif at the N-termini of G-alpha proteins”. *Biochemistry*, 2002, 41 (49): 14518-14523.
  30. **Kosloff M.**, Selinger Z. “Substrate assisted catalysis - application to G proteins”. *Trends in Biochemical Sciences*, 2001, 26 (3): 161-166.
  31. **Kosloff M.**, Zor T., Selinger Z. “Substrate-assisted catalysis: Implications for biotechnology and drug design”. *Drug Development Research*, 2000, 50 (3-4): 250-257.
-